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09/918,504

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Vincenzo Sestito

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04/06/2005

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EXAMINER

MURPHY, RHONDA L

ART UNIT

PAPER NUMBER

2667

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/918,504

Applicant(s)

SESTITO, VINCENZO

Examiner

Rhonda Murphy

Art Unit

2667

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-17 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/01/01</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 5, 11-12 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Usuba et al. (US 6,614,754).

**Regarding claim 1**, Usuba teaches a method of re-routing a path in a Bi-directional Line Switched Ring (BLSR) network in the event of a span failure (col. 1, lines 33-37). A BLSR network in SONET is equivalent to Multiplex Section Shared Protection Ring (MS-SPRing) in SDH. The fiber spans between each node consists of working channels and protection channels. Usuba's method comprises the step of setting a time slot number of the path entering a node and a time slot number of the path exiting a node, independently of each other, and when a failure occurs on one of the working spans, executing a span switching that allows a path to be maintained by using a protection transmission line with the same time slot number of the working transmission line – the time slot number of the working channel represents the index (col. 5, lines 48-59; col. 8, lines 1-3).

**Regarding claims 5 and 16**, Usuba further teaches a four-fiber network capable of re-routing the TSI path using the same index for both the working channel and protection channel (col. 1, lines 33-40; col. 9, lines 15-23).

**Regarding claim 11**, Usuba further teaches each node holding a ring topology map indicating an order of the node IDs within the ring and a STS squelch map indicating at which node a path, which passes through a present node or is added or dropped at the present node, is added and at which node the path is dropped (col. 4, lines 20-26).

Additionally, the squelch map indicates a West side time slot number and East side time slot number (col. 4, lines 33-43).

**Regarding claim 12**, Usuba teaches a BLSR network comprising fiber spans with working channels and protection channels, nodes comprising means for performing ring switch actions, span switching or pass through, upon receipt of corresponding signaling (col. 3, lines 32-37); means for generating and sending signals upon receipt of the corresponding signaling (col. 3, lines 29-37); a time slot interchange (TSI) path including means for setting a time slot number of the path entering a node and a time slot number of the path exiting a node, independently of each other (col. 5, lines 48-53), and means for a protection transmission line to be provided with the same time slot number as that of a working transmission line, in the event of a failure on a span (col. 4, lines 54-59).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2, 6 – 9, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba in view of Ellinas et al. (US 6,760,302).

**Regarding claims 2 and 13**, Usuba teaches a span affected by failure and re-routing the time slot interchange (TSI) path using a protection channel with the same time slot number as the working channel of the failed span (col. 9, lines 15-23). Usuba does not teach a further span affected by failure and selecting one of the two failed spans.

However, Ellinas teaches two link failures (Fig. 5) and activating the protection switches when each failure occurs and further transferring the data from the working fibers to the protection fibers (col. 10, lines 35-44).

In view of this, it would have been obvious to one skilled in the art to modify Usuba's method, by including an additional failure span and further switching the data from a working path to a protection path, in order to allow for a ring switching to occur between nodes when multiple spans are down.

**Regarding claims 6 and 17**, Usuba further teaches a four-fiber network capable of re-routing the TSI path using the same index for both the working channel and protection channel (col. 1, lines 33-40; col. 9, lines 15-23, Fig. 16).

**Regarding claim 7**, the combined method of Usuba and Ellinas teach selecting a failed span. Usuba further teaches identifying switching nodes in a failed path (col. 4, lines 46-48) and an order of the node IDs within a map (col. 4, lines 20-26). Since Usuba teaches maps indicating an order of the node IDs, it would have been obvious to have

switching nodes with higher or lower ID numbers. Additionally, it would have been obvious to one skilled in the art to select the failed span adjacent to a switching node with a higher or lower ID number, since the adjacent node with the higher or lower ID number is capable of performing the switching process for the failed span.

**Regarding claim 8**, the combined method of Usuba and Ellinas teach selecting a failed span. Usuba further teaches identifying switching nodes in a failed path (col. 4, lines 46-48) and a ring map node order (col. 4, lines 20-26). Since Usuba teaches ordering of nodes, it would have been obvious for the switching nodes to be identified as first or last in the ring map. Additionally, it would have been obvious to one skilled in the art to select the failed span adjacent to a switching node that comes first or last, since the adjacent node that is first or last, is capable of performing the switching process for the failed span.

**Regarding claim 9**, the combined method of Usuba and Ellinas teach selecting a failed span. Usuba further teaches identifying switching nodes in a failed path (col. 4, lines 46-48) and an order of the node IDs within a map (col. 4, lines 20-26). Furthermore, Usuba teaches identifying East and West sides in the network (col. 4, lines 36-39). Since Usuba teaches nodes with East and West sides, it would have been obvious to one skilled in the art to select the failed span adjacent to the node on either the East or West side, since the failed span would be located in between the East side of one node and the West side of the other node.

5. Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba, in view of Chaudhuri (US 5,745,476).

**Regarding claims 3 and 14**, Usuba teaches a two-fiber ring network of re-routing a TSI path over protection channels (col. 1, lines 33-40). The time slot index represents the time slot of the working channel affected by the span failure. Although, Usuba teaches such index, Usuba fails to teach an index given by the sum of half the overall number of handled channels.

However, Chaudhuri teaches the use of time slots 1-8 for normal traffic and slots 9-16 for failure traffic. Furthermore, a signal assigned to slot 1 arrives at a node affected by a span failure and is switched onto a protection channel in slot 9 (col. 4, lines 7-20). In other words, Chaudhuri teaches a time slot number index (slot 9) representing the sum of half the number of handled channels (slot  $1 + (16/2)$ ).

In view of this, it would have been obvious to one skilled in the art, to incorporate the aforementioned index, for the purpose of assigning time slots using a technique that is more flexible and efficient.

6. Claims 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba and Ellinas, as applied to claim 2 above, and further in view of Chaudhuri (US 5,745,476).

**Regarding claims 4 and 15**, Usuba and Ellinas teach a ring network of re-routing a TSI path over protection channels upon the occurrence of two failed spans. Usuba and

Ellinas fail to teach to teach an index given by the sum of half the overall number of handled channels.

However, Chaudhuri teaches the use of time slots 1-8 for normal traffic and slots 9-16 for failure traffic. Furthermore, a signal assigned to slot 1 arrives at a node affected by a span failure and is switched onto a protection channel in slot 9 (col. 4, lines 7-20). In other words, Chaudhuri teaches a time slot number index (slot 9) representing the sum of half the number of handled channels (slot  $1 + (16/2)$ ).

In view of this, it would have been obvious to one skilled in the art, to incorporate the aforementioned index into Usuba and Ellinas' method, for the purpose of assigning time slots using a technique that is more flexible and efficient.

### ***Allowable Subject Matter***

7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

\*Lu (US 5,815,490) discloses SDH ring high order path management.

\*Finn et al. (US 6,728,205) discloses a method and apparatus for automatic protection switching.



\*Badr (US 6,775,477) discloses an optical communication network and protection methods.

\*Watkins et al. (US 6,798,747) discloses a system and method for time slot assignment in a fiber optic network simulation plan.


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda Murphy whose telephone number is (571) 272-3185. The examiner can normally be reached on Monday - Friday 8:00 - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rhonda Murphy  
Examiner  
Art Unit 2667

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